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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,203	07/11/2003	Ylian Saint-Hilaire	42P15882	4160

8791 7590 09/19/2006

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EXAMINER	
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ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,203	SAINT-HILAIRE ET AL.	
	Examiner	Art Unit	
	Daniel F. Hajnik	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Interface Remoting to Animate Image Data".

2. The use of the trademark "Intel" has been noted in this application (i.e. see page 6 of the specification). It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 and 30-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-16 appear to be directed to an abstract idea rather than a practical application of the idea. The claims do not result in a physical transformation nor does it appear to provide a useful, concrete, and tangible result. Specifically, it does not appear to produce a tangible result because merely "receiving", "updating", and "storing" are nothing more than thoughts or computations

within a processor. It fails to use or make available for use the result of the method to enable its functionality and usefulness to be realized. Additionally, the asserted practical application in the specification is displaying a computer graphics image. The practical application is not explicitly recited in the claims nor does it flow inherently therefrom.

Claims 30-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter, electro-magnetic signals (see the specification on pages 3-4 in paragraph [0013] where the machine-readable medium can include a signal). Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 14-19, 24, 25, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al. (NPL Document "The RFB Protocol", herein referred to as "Richardson").

As per claim 1, Richardson teaches the claimed:

> updating a frame buffer of the device with an image object

By teaching of:

> *A sequence of these rectangles makes **a framebuffer update** (or simply update). An **update represents a change** from one valid framebuffer state to another, so in some ways is similar to a frame of video.*
> (p. 2, § 2, ¶ 2)

Here, the period of time is associated with the change and updating between frames.

Richardson does not explicitly teach the claimed:

> receiving a motion command from another device, and

Richardson suggest the claimed limitation by teaching of:

> ***A sequence of these rectangles makes a framebuffer update** (or simply update). An **update represents a change from one valid framebuffer state to another**, so in some ways is similar to a frame of video.*
> (p. 2, § 2, ¶ 2)
>
> *The update protocol is demand-driven by the client.*
> (p. 2, § 2, ¶ 3)
>
> ***Input events** are simply sent to the server by the client whenever the user presses a key or pointer button, or **whenever the pointing device is moved***
> (p. 2, § 3, ¶ 1)
>
> *remote access to graphical user interfaces*
> (p. 1, § 1, ¶ 1)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Richardson to include motion commands because the reference teaches that the sequence of rectangles changing over frames. Further, the reference teaches of clients performing demand-driven updates associated with this motion (suggests motion commands). For example, this

motion can be associated with input commands to move user interface features around the screen. One advantage to using the particular claimed feature is that motion commands are a useful way to control animated sprites or windows.

Richardson does not explicitly teach:

> an image cache

The examiner takes Office Notice that using an image cache with image objects is old and well-known in the art. One advantage to using such a feature is that an image cache can holds copies of recently accessed data and thus speed up memory access time.

As per claim 2, Richardson teaches the claimed:

> 2. The method of claim 1 comprising generating a video output signal representative of the frame buffer and the motion of the image object.

in the figure on page 1 where the video output signal generates the display on the client computer on the right side of the figure.

As per claim 14, Richardson teaches the claimed:

> 14. The method of claim 1 comprising receiving a capabilities command from the another device, and providing the another device with capabilities of the device.

By teaching of:

> *Handshaking begins by the **server sending the client** a ProtocolVersion message. **This lets the client know which is the latest RFB protocol version number supported by the server.***
> (p. 7, § 5.1.1, ¶ 1)

Here, the capabilities are associated with the protocol version.

As per claim 15, Richardson teaches the claimed:

> 15. The method of claim 1 comprising receiving a cache management command from the another device, and updating the image cache per the cache management command.

By teaching of:

> *Notifies the server that the client is interested in the area of the framebuffer specified by x-position, y-position, width and height.* ***The server usually responds to a Framebuffer-UpdateRequest by sending a FramebufferUpdate.***
> (p. 21, § 5.3.1, ¶ 1)

Here, the image cache can be associated with the frame buffer because the frame buffer can update the image cache with frequently used image data. This image cache allows the client to reduce the amount of image data required from the server.

As per claim 16, Richardson does not explicitly teach the claimed:

> 16. The method of claim 1 comprising providing the another device with an indication that the device has completed the motion command.

Richardson suggests the claimed limitation by teaching of:

> *The RFB protocol* ***can operate over any reliable transport, either byte-stream or messagebased****. There are two stages to the protocol; an initial handshaking phase followed by the normal protocol* ***interaction****.*
> (p. 2, § 1, ¶ 3)

It would have been obvious to one of ordinary skill in the art at the time of invention to use the claimed feature because the reference teaches of establishing a reliable transport stream or message system. Such transport systems can use a "completed" message or signal in order to properly communicate the duration of the motion. One advantage for utilizing the claimed feature is that the client knows exactly when to stop updating a frame buffer area associated with

the motion when the motion is complete. This complete message prevents the need for unnecessary updates.

As per claim 17, Richardson teaches the claimed:

> 17. An apparatus comprising
> at least one processor to execute instructions,
> a network interface controller to transmit commands to a remote device

By teaching of:

> *"RFB" server*
> (figure on page 1)
>
> *Network bandwidth*
> (p. 2, § 2, ¶ 1)
>
> *RFB ("remote framebuffer") is a simple protocol* ***for remote access*** *to graphical user interfaces.*
> (p. 1, § 1, ¶ 1)

Here, the server has a processor associated with it.

Richardson teaches the claimed:

> a memory comprising a plurality of instructions that in response to being executed by the at least one processor, result in the at least one processor, loading the remote device with image objects,

By teaching of:

> ***Initial interaction between the RFB client and server*** *involves a negotiation of the format and encoding with which* ***pixel data will be sent*** *... The bottom line is that the server must always be able to supply pixel data in the form the client wants.*
> (pgs. 2 and 3, § 4, ¶ 1)

Richardson does not explicitly teach the claimed:

> transmitting one or more motion commands via the network
> interface controller that requests the remote device to animate one or

more loaded image objects

Richardson suggests the claimed limitation for the same reasons as stated in claim 1 in regards to the claimed "motion command". In addition, the motivation of claim 1 is incorporated herein.

As per claims 18 and 19, Richardson does not explicitly teach the claimed:

> 18. The apparatus of claim 17 wherein the plurality of instructions further result in the at least one processor generating the one or more motion commands based upon one or more events generated by an application of the apparatus.
>
> 19. The apparatus of claim 17 wherein the plurality of instructions further result in the at least one processor generating the one or more motion commands based upon one or more events received from the remote device via the network interface controller.

because Richardson does not explicitly teach of motion commands.

Richardson suggests the claimed limitations by teaching of:

> ***Input events are simply sent to the server by the client whenever the user presses a key or pointer button**, or whenever the pointing device is moved.*
> (p. 2, § 3, ¶ 1)
>
> *RFB ("remote framebuffer") is a simple protocol for remote access to graphical user interfaces.*
> (p. 1, § 1, ¶ 1)

Richardson suggests the claimed limitations by teaching that events are generated in response to the GUI interaction. One of ordinary skill in the art can modify Richardson to perform the claimed limitation by having a GUI interaction event a generate a motion command such as moving a window across the desktop (from an event or an application). One particular advantage to using the claimed features is that generated motion commands can be incorporated

into the encoded communication stream through motion vectors in order to produce an easier implementation of the system.

As per claim 24, the reasons and rationale for the rejection of claim 1 is incorporated herein.

Richardson teaches the claimed:

> 24. An apparatus comprising:
> a network interface controller to receive commands and image objects,

By teaching of:

> *Network bandwidth*
> (p. 2, § 2, ¶ 1)
> (page 2, section 2, 1st paragraph)
>
> ***Initial interaction between the RFB client and server*** *involves a negotiation of the format and encoding with which* ***pixel data will be sent*** *... The bottom line is that* ***the server must always be able to supply pixel data in the form the client wants.***
> (pgs. 2 and 3, § 4, ¶ 1)
> (emphasis added to various quotations here and below)

Here, the network interface is associated with the interaction over the network between the RFB client and the server.

Richardson teaches the claimed:

> at least one video processor to execute received commands and to update a frame buffer to animate image objects as requested by received commands.

By teaching of:

> *The update protocol is demand-driven by the client.*
> (p. 2, § 2, ¶ 3)
>
> *A sequence of these rectangles makes* ***a framebuffer update*** *(or simply update). An* ***update represents a change*** *from one valid framebuffer state to another, so in some ways* ***is similar to a frame of video.***

(p. 2, § 2, ¶ 2)

Here, the demand-driven client protocol issues and receives commands. Further, the video processor is required to properly handle and display the image data to produce the animation (changing image data over video frames).

Richardson does not explicitly teach the claimed:

an image cache to store image objects

The examiner takes Office Notice that an image cache to store image objects is old and well-known in the art. One advantage to using such a feature is that an image cache can holds copies of recently accessed data and thus speed up memory access time.

As per claim 25, this claim is similar in scope to claim 2, and is rejected under the same rationale.

As per claim 30, the reasons and rationale for the rejection of claim 17 is incorporated herein in regards to the claimed "motion commands".

Richardson teaches the claimed:

> 30. A machine-readable medium comprising a plurality of instructions that in response to being executed, result in an apparatus,
> determining to update a graphical user interface in response to one or more events,

By teaching of:

> *RFB ("remote framebuffer") is a simple protocol for remote access to* ***graphical user interfaces***.
> (p. 1, § 1, ¶ 1)
>
> *a framebuffer* ***update***

(p. 2, § 2, ¶ 2)

Input events
(p. 2, § 3, ¶ 1)

The motivation to modify Richardson in regards to the claimed "motion commands" is incorporated herein from claim 1.

3. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson in view of Noimark et al. (NPL Document "Streaming Scenes to MPEG-4 Video-Enabled Devices", herein referred to as "Noimark").

As per claims 3 and 4, Richardson does not explicitly teach the claimed:

> 3. The method of claim I comprising
> receiving a background image from the another device,
> storing the background image to a background buffer, and
> updating the frame buffer with the background image prior to updating the frame buffer with the image object.
>
> 4. The method of claim 1 comprising
> receiving a background image from the another device,
> decompressing the background image, and
> storing the background image to a background buffer of the device in a decompressed form.

Noimark teaches the claimed limitation by teaching of:

> *We transmit the foreground and* ***background*** *as separate* ***objects***.
> (pg. 62, § "Foreground and background objects", ¶ 1)
>
> *The mobile device—****capable of decoding*** *and composing MPEG-4 video objects—decodes and composes the foreground and background,* ***reconstructing the original scene***
> (pg. 62, § "Foreground and background objects", ¶ 2)

(decompressing)

The reference further teaches of storing in a cache in the top figure on pg. 59 where the "Thin Client" has an incoming "Frame sequence streaming" input and the "Thin Client" has a screen capable of displaying these frames. A cache can be used to store previously streamed data and thus allows the stream to be more new image data.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Richardson and Noimark. Noimark teaches one advantage of the combination by teaching of:

> *We introduced a server-based system that alleviates the processing power required by a thin client to render an interactive remote walkthrough. ... Because we're streaming computer-generated video, we benefit from the available model of the scene to better compress the sequence and reduce the required bandwidth and communication latency.* (pg. 63, § "Conclusions", ¶ 1)

where Richardson would benefit from the added functionality.

As per claims 5 and 6, the reasons and rationale for the rejection of claims 3, 4, and 24 are incorporated herein. Richardson does not explicitly teach the claimed:

> 5. The method of claim I comprising
> receiving the image object from the another device
>
> 6. The method of claim 1 comprising
> receiving the image object from the another device,
> decompressing the image object, and
> storing the image object ... in a decompressed form.

Noimark teaches the claimed limitation by teaching of:

> *We transmit the **foreground** and background as separate*

> ***objects***.
> (pg. 62, § "Foreground and background objects", ¶ 1)
>
> *The mobile device—**capable of decoding** and composing MPEG-4 video objects—decodes and composes the foreground and background, reconstructing the original scene*
> (pg. 62, § "Foreground and background objects", ¶ 2)
> (decompressing)

The motivation of claims 3 and 4 is incorporated herein.

4. Claims 7-13, 20-23, 26-29, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson in view of Stern et al. (US Patent 4600919, herein referred to as "Stern").

As per claim 7, Richardson does not explicitly teach the claimed:

> 7. The method of claim 1 wherein
> the motion command indicates first location, second location, and a time period,
>
> updating the frame buffer with the image object comprises updating the frame buffer to animate the image object moving from the first location to the second location over the time period

Stern teaches the claimed limitations by teaching of:

> *Also, the operator **can control the interpolation during display** of the in-between frames, **so as to change the motion** of a figure limb*
> *(abstract)*
>
> *The frame storage means is of the type known as a **"frame buffer"***
> *(col 3, lines 50-51)*
>
> *Each of the **motion**, **rotation**, and **scaling parameters** of the transformation matrices of the current joint **are interpolated** in the present embodiment, and this is done **for each of the x, y and z components** ... In an operational embodiment hereof, **a cubic curve was fit** through the points in a standard **in-betweening plot of frame number** versus the parameter being interpolated (see e.g. FIG. 10)*

(col 10, lines 33-43)

Further, figure 10 shows a first location and a second location for one example transformation. The time period is associated with the interpolation over frames. The interpolation represents the motion over time, and thus there is a time period associated with the motion.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Richardson and Stern. One advantage of the combination is that the key frame and interpolation techniques offered by Stern are one of the simplest and most easy ways to implement a compression/encoding scheme in order to reduce motion data for network transmission. This would benefit Richardson through faster response times in its GUI system.

As per claim 8, Richardson does not explicitly teach the claimed:

> 8. The method of claim 1 wherein
> the motion command indicates a plurality of location and a time period,
>
> updating the frame buffer with the image object comprises updating the frame buffer to animate the image object moving along a curve defined by the plurality of location over the time period

Stern teaches the claimed the limitations for the same reasons as stated in claim 7. The motivation from claim 7 is incorporated herein.

As per claim 9, Richardson does not explicitly teach the claimed:

> 9. The method of claim 1 wherein
> the motion command indicates new location and a time period, and
>
> updating the frame buffer with the image object comprises updating the frame buffer to animate the image object moving from a current location to the new location over the time period

Stern teaches the claimed the limitations for the same reasons as stated in claim 7. The motivation from claim 7 is incorporated herein.

As per claim 10, the reasons and rationale for the rejection of claim 7 is incorporated herein.

Richardson does not explicitly teach the claimed:

> 10. The method of claim 1 wherein
> the motion command indicates a first scale, a second scale, and a time period,
>
> updating the frame buffer with the image object comprises updating the frame buffer to animate the image object transitioning from the first scale to the second scale over the time period.

Stern teaches the claimed limitations by teaching of:

> *Each of the motion, rotation, and* ***scaling parameters*** *of the transformation matrices of the current joint* ***are interpolated*** *in the present embodiment, and this is done* ***for each of the x, y and z components***
> (col 10, lines 33-40)

One advantage of the claimed feature is that the key frame and interpolation techniques offered by Stern for scaling are one of the simplest and most easy ways to implement a compression/encoding scheme in order to reduce motion data for network transmission.

As per claim 11, Richardson does not explicitly teach the claimed:

> 11. The method of claim 1 wherein
> the motion command indicates a new scale and a time period, and
>
> updating the frame buffer with the image object comprises updating the frame buffer to animate the image object transitioning from a current scale to the new scale over the time period

Stern teaches the claimed the limitations for the same reasons as stated in claim 10. The motivation from claim 10 is incorporated herein.

As per claim 12, the reasons and rationale for the rejection of claim 7 is incorporated herein.

Richardson does not explicitly teach the claimed:

> 12. The method of claim 1 wherein
> the motion command indicates a first rotation, a second rotation, and a time period, and
>
> updating the frame buffer with the image object comprises updating the frame buffer such that the image object is rotated from the first rotation to the second rotation over the time period

Stern teaches the claimed limitations by teaching of:

> *Each of the motion, **rotation**, and scaling **parameters** of the transformation matrices of the current joint **are interpolated** in the present embodiment, and this is done **for each of the x, y and z components***
> (col 10, lines 33-40)

One advantage of the claimed feature is that the key frame and interpolation techniques offered by Stern for rotation are one of the simplest and most easy ways to implement a compression/encoding scheme in order to reduce motion data for network transmission.

As per claim 13, Richardson does not explicitly teach the claimed:

> 13. The method of claim 1 wherein
> the motion command indicates a new rotation and a time period, and
>
> updating the frame buffer with the image object comprises updating the frame buffer such that the image object is rotated from a current rotation to the new rotation over the time period

Stern teaches the claimed the limitations for the same reasons as stated in claim 12. The motivation from claim 12 is incorporated herein.

As per claims 20-23, these claims are similar in scope to claims 7, 10, 12, and 8, respectively, and are rejected under the same rationale.

As per claims 26-29, these claims are similar in scope to claims 7, 10, 12, and 8, respectively, and are rejected under the same rationale.

As per claims 31-34, these claims are similar in scope to claims 7, 10, 12, and 8, respectively, and are rejected under the same rationale.

Conclusion

The following prior art made of record and relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. 2002/0032751

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel F. Hajnik whose telephone number is (571) 272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka J. Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

9/15/06

DFH

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER